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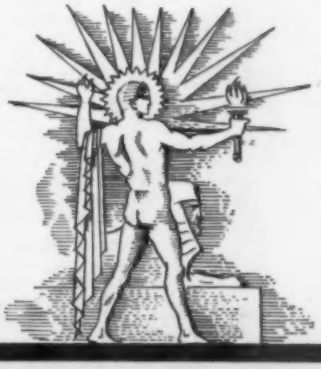
SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE •



APRIL 7, 1934

Beginnings of the Largest Telescope

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VOL. XXV *No. 678*

The Weekly Summary of Current Science

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Edited by WATSON DAVIS

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DO YOU KNOW?

Honey is believed to be the chief sweet known to the Greeks and Romans.

The Parthenon in Athens served in turn as a temple, a church, and a mosque.

The grave of a Viking chief has been found in the grounds of Stockholm's new airport.

The growing of orchids is now speeded up by planting the seed in air-tight test tubes.

Federal chemists have found ways to store turpentine to prevent rapid deterioration in its quality.

To keep highways from freezing in icy weather, German scientists are trying chemical methods of making anti-freeze road surfaces.

A government scientist has isolated a bacterium which seems to be the cause of three apple diseases, measles, target canker, and rough bark.

There are 1,200 natural lakes in the "arid" state of Nebraska.

Entomologists figure that there is about one chance in nineteen that weather will keep grasshoppers in check.

Usefulness of splints in healing a broken arm was known to the prehistoric Cliff Dwellers of the Southwest.

Sprouting of potatoes can be speeded up by a month or more if the whole or cut dormant potato tubers are treated with carbon dioxide.

Scientists studying the genetics of the Thoroughbred horse at Cold Spring Harbor, N. Y., have gathered records of 10,000 Thoroughbreds.

At 40 degrees below zero a person exerting himself outdoors is in danger of freezing his lungs and contracting pneumonia or tuberculosis.

Famous Crater Lake, in Oregon, seems to be dependent for its water entirely upon moisture from the skies, having no known outlets or inlets.

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ARCHAEOLOGY

What people inhabited Palestine in 13,000 B.C.? p. 217.

Where did both ancient and modern armies fight alike? p. 213.

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How does the meadowlark dress? p. 223. *Field Book of Wild Birds and Their Music—F. S. Mathews—Putnam's,* 1904, $3.50.

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Where did the first men live? p. 211. *Up From the Ape—E. A. Hooton—Macmillan,* 1931, $5.

PHARMACOLOGY

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PSYCHOLOGY

Can a touch be "felt" where it is not? p. 216.

Which is the musical "chord of excitement?" p. 214.

SEISMOLOGY

When did the earth shake severely at the Solomon Islands? p. 212.

These curiosity-arousing questions show at a glance the wide field of scientific activity from which this week's news comes. Book references in italic type are not sources of information for the article, but the references for further reading. Books cited can be supplied at Book Department, Science News Letter, at publishers' prices, prepaid in the United States.

PALEONTOLOGY

New Link of Man and Ape History Found in India

Fossils Reveal Existence of Apes Nearer Main Trunk Of Man's Evolution Than Any Previously Known

A NEW link in the evolutionary history of man and ape has been discovered by the Yale North India Expedition. Investigation of fossil jaw bones and teeth brought back by the expedition reveals existence of man-like apes nearer to the main trunk of man's evolution than any living or extinct great apes previously known. The family to which these man-like apes belong could develop in several directions, some becoming more like the great apes, others approaching man.

Three entirely new genera are included among the five fossil jaws found in the badlands region of Potwar, India. One has been named *Ramapithecus*, after Rama, the hero of a Sanskrit epic. Another is named *Sugrivapithecus* after Sugriva, king of the monkeys in the same saga. The jaw of *Sugrivapithecus* indicates that the animal had a well-developed chin, a sign of high evolution, said the discoverer of the remains, G. Edward Lewis, the expedition's paleontologist. The chin is more like that of a primitive man than that of any living great ape. Many features of the teeth show parallels with human anatomy.

The finds tend to confirm the theory that higher primates originated in this section of the world, said Mr. Lewis. From a Eurasian center they migrated into China, Java, Asia Minor, India, Africa, and Europe. No anthropoid apes or very early humans, however, have ever been found in America.

The expedition discovered many fossils of animals. Curious huge ruminants related to the modern giraffe were found. They resemble a cross between a moose and a bison and have two pairs of horns. Giant land tortoises that make elephant tortoises of the Galapagos Islands look like pygmies were uncovered.

Stone knives and crude scrapers used by men some 500,000 years ago, but millions of years after the era of the fossil anthropoid apes, were discovered by Prof. Hellmut de Terra, leader of the expedition. With the Stone Age implements lay remains of mammoths and hoofed animals. These discoveries show for the first time that early Stone Age men inhabited the Himalayan Mountain region.

The foothills are called by Prof. de Terra a "cemetery of prehistoric life," because of the fossil bones, wood, and leaves preserved in the rocks.

The Himalayan region is the most dynamic in the world, geologically speaking, Prof. de Terra reported. It has changed from an ocean to the highest mountain land on earth, and in the strata are fossils from every geologic age in earth history. Today, the region north of Benares is rising at the rate of six feet a century.

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CHEMISTRY

Chemists Cure Unpleasant Odors and Imitate Scents

SO ODOR-CONSCIOUS have we become that chemists are now being called on to take away the "big bad breath" of such necessary merchandise as linoleum, galoshes and certain kinds of cloth, and give them an odor of commercial sanctity, Prof. Martson T. Bogert of Columbia University told the American Chemical Society meeting at St. Petersburg, Fla. He cited the case of European reproductions of oriental shawls, which would not sell until they were scented with the right oriental oil.

Sometimes there is even a real need for a musty odor that ordinarily would not be liked. When the Chicago Museum of Science and Industry installed its famous "indoor coal mine" some months ago, chemists were called upon to reproduce the earthy "underground" odor of a coal mine. This they did, so that now the visitor smells his coal mine while he is seeing it.

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NUTRITION—CHEMISTRY

Two Protein Builders Shown Necessary for Life

DISCOVERY of two substances essential for life and growth were reported by Dr. William C. Rose and Madelyn Womack of the University of Illinois to the American Institute of Nutrition. This newly organized scientific body just held its first annual meeting.

The two substances described by Dr. Rose are leucine and isoleucine. They belong to the chemical family of amino acids, which have been called building blocks of the protein substances in our food. There are eighteen or twenty of these amino acids. Previously four of them had been found to be indispensable food elements—indispensable because the body can not make them itself. Now the Illinois investigators have found that two more of these amino acids are indispensable.

Science News Letter, April 7, 1934

WELL-DEVELOPED CHIN

BADLANDS

The chin of the new-found Sugrivapithecus is more like primitive man's than those of living great apes. The region of the Badlands of Potwar is called a "cemetery of prehistoric life" because of the abundance of fossils.

BOTANY—ENTOMOLOGY

Insect Poison Plant Studied for Dual Purpose

Americans Synthesize New Poison as Soviets Extract it From Weed; May be Crop For Southwest

COMBINING the possibilities of checking the ravages of certain insects against already existing crops, and of being itself a good crop to use on some irrigated lands of California and elsewhere in the Southwest, a new insect-poison plant has attracted the attention of pharmacologists attending the meeting of the American Chemical Society in St. Petersburg, Fla.

The poison is known as anabasin, and is especially effective against aphids, or "plant lice," which are among the hardest-to-kill of all insect enemies of plants, and annually do vast amounts of damage to field crops, nursery stock and shrubbery. They are particularly bad troublemakers in greenhouses.

The standard means of chemical warfare against these pests now is nicotin, made from tobacco wastes and from especially grown tobacco varieties. But the new chemical, anabasin, is said to be an even more potent aphid-killer. It will also kill other insects, although for some of these uses it is not so effective as nicotin and that other recently developed insecticide, rotenone.

Anabasin is a double discovery. American chemists, striving to make something stronger than nicotin, synthesized a compound which they called "neonicotin." At the same time, Russian chemists extracted a most efficient insect poison from a common weed bearing the classic Greek name *Anabasis*, and called it anabasin. A comparison of the synthetic and the natural compounds showed them to be chemically identical.

Small shipments of anabasin made in Russia have been received in New York. The U. S. Department of Agriculture chemists and entomologists have become greatly interested in the compound, and are continuing their experiments, with an eye to its possible usefulness against other insect pests.

Anabasis is a genus of dry-land weeds common in North Africa, Asia Minor and parts of Russia. There are about fifty species, of which only one, *Anabasis aphyllum*, has been investigated as a source of insect poison. The plant is related to such common American weeds as lamb's quarters, tumbleweed and greasewood.

While chemists and entomologists are looking into its usefulness as a source of aphid poison, botanists of the U. S. Department of Agriculture are undertaking tests to find whether it can be grown with profit in some of the warm, dry lands of the Southwest, which are similar to its native habitat.

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AGRICULTURE

Germans Develop and Grow Nicotin-Free Tobacco

TWENTY-FIVE German peasants have begun the cultivation of nicotin-free tobacco from plants supplied by the Forschheimer Institute for Tobacco Research in Frankfurt.

This report has been made by Dr. Paul Koenig, director of the Institute. As the result of several years of experiments in breeding, the Frankfurt scientists have developed not one but several varieties of tobacco plant that are free of nicotin or of low nicotin content. Cigars, cigarettes, and pipe tobacco from these plants will soon be available for those who like that sort of thing.

Dr. W. Dörr of the Institute has followed closely the development of nicotin in the growing plants, and in the processes of drying and of fermentation. He finds that there are periods when no nicotin develops at all or only very slowly, others of rapid development and others when the nicotin content diminishes.

The Institute has discovered a hitherto unobserved constituent of German tobaccos, which they call chlorogen acid, which has much to do with the flavor. They are seeking to increase the content of this substance, and of others known to be responsible for the aroma. They are also breeding plants having 45 to 60 leaves instead of the usual 15 to 20.

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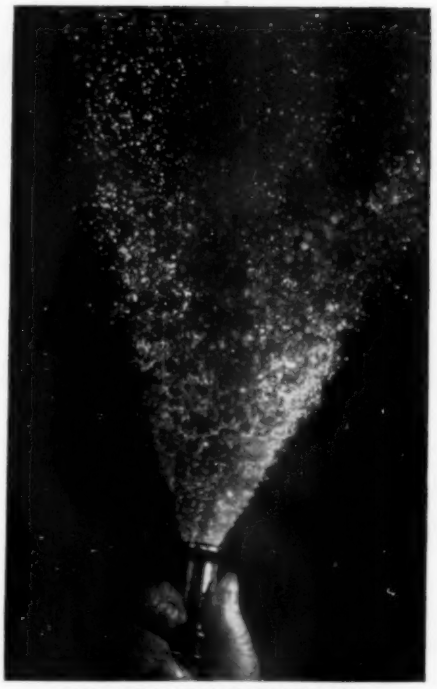

OUT OF A GARDEN HOSE

This curious spatter of dots is what you would see every time you sprinkle the lawn if it were possible for you to view the spraying water in just one wink lasting only one one-hundred-thousandth of a second. That is the exposure of the fast camera at Massachusetts Institute of Technology which took this picture for Dr. Harold E. Edgerton and Kenneth J. Germeshausen. Other examples of high speed photography are reproduced in Science News Letter for Feb. 10, '34, p. 90; March 10, '34, cover.

SEISMOLOGY

World-Shaking Earthquake Near Solomon Islands

A SEVERE and world-shaking earthquake that agitated the seismographs strongly on Saturday, March 24, has been located near the Solomon Islands on the northeast edge of the Coral Sea. Telegraphic reports to Science Service from a dozen earthquake stations, including Samoa, Manila and Honolulu, enabled experts of the U. S. Coast and Geodetic Survey to compute the shock's center. Probably the disturbance was beneath the sea but it may have been felt in the islands and may possibly have done some damage there.

The time of the quake was 7:04½ a. m., E. S. T., and its epicenter's geographical position was 10 degrees South and 161 degrees East.

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MEDICINE

Immunity to Encephalitis Achieved in Mice

Protection Given Animals For at Least Five Weeks By Death-Dealing Injection Not Yet Extended to Humans

A METHOD of giving protection against encephalitis, popularly called "sleeping sickness" and recently epidemic in St. Louis, was reported by Drs. Leslie T. Webster and George L. Fite of the Rockefeller Institute for Medical Research to the American Association of Pathologists and Bacteriologists meeting in Toronto. During last year's St. Louis epidemic, physicians had no method of protection against the disease.

The method made mice resistant to the disease within seven days. So far no results on human cases have been reported, but the research seems to be a step in that direction.

The discovery of the protective method depended on the previous discovery of these scientists that the causative virus of the disease, like the infantile paralysis virus, invades the body through the nose, travelling to the brain along the nerves of smell rather than via the blood stream.

Protective resistance to the disease or immunity, to use the scientific term, may be established by injecting a small amount of the causative virus into some other part of the body than the nose, whence it will travel along a route relatively insensitive to the infection, Drs. Webster and Fite found.

They injected 1,000 death-dealing or lethal doses of the virus under the skin or into the abdomen of mice. The animals did not get encephalitis but remained well. Within seven days they were immune to 1,000 intranasal or 1,000,000 intracerebral lethal doses. In fact, a single injection of one millionth of a gram of the virus brings about this high grade immunity, they reported. The immunity lasts five weeks and doubtless much longer.

These investigators also developed a test which distinguishes the virus that caused the disease in the St. Louis epidemic from other types of the disease. They reported that the type prevalent in St. Louis last summer also occurred in Kansas City, Mo., and New York City in the summer of 1933 and in Paris, Ill., in 1932. It was not the same type, serologically, as that which broke out in Japan some years ago, nor is it the same as the type known as epidemic or lethargic encephalitis. It was from this latter type that the disease acquired its popular name of sleeping or sleepy sickness.

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ARCHAEOLOGY

World War Trenches Reveal Ancient Battle Lines

ROMAN emperors and modern World War generals both had the same ideas as to where to place battle lines, archaeologists have discovered.

An expedition from the Fogg Art Museum of Harvard, led by Dr. Vladimir J. Fewkes, has spent several months exploring World War trenches and shell holes in Yugoslavia. Results of the expedition, just announced at Cambridge, Mass., show that a single site was sometimes used for fortifications by early Macedonians, then Roman legions, then armies of the Byzantine Empire, soldiers of the Old Serbian kingdom, Turks, modern Serbians, and finally World War troops.

A string of Roman forts built by the Emperor Trajan in the second century A.D. was one discovery. The forts, inferred from Roman sources, but never identified, are today a series of mounds south of the Danube. For 150 years, ten Roman legions were stationed in these Danube forts from Bavaria to the Black Sea. A Roman military road was also discovered.

Roman sites are present throughout this region and the rest of Old Serbia, and especially Macedonia, it is reported. Some of the emperors were natives of what is now Yugoslavia, and large and important cities of Roman times are today being identified, some at the sites of modern cities.

Other discoveries of the expedition included a mound in Macedonia containing relics of New Stone Age habitation. Painted pottery discovered there shows cultural relations with the Aegean coast, and is believed to be the most northern extension of that culture yet known. The newly found site may help in determining routes by which later civilizations were to spread. Five unclothed female figurines of baked clay used as religious objects by the Stone Age people of 3000 B.C. were found.

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CHEMISTRY

Yes, There's Gold in the Sea; But Just Try to Get it Out

THE CRY "Gold!" which stirs emotions mightily has been raised as a sequel to the successful extraction of the chemical, bromine, from sea water by a chemical plant at Wilmington, N. C., which swallows a third of a billion pounds of sea water daily and snatches bromine out of it in exchange for cheaper and more plentiful chlorine.

That there is gold in the sea there is no doubt. But the difficulty is to extract it profitably.

The most serious gold rush to the sea occurred in the years following the World War when the chemist, Fritz Haber, saw a chance of making Father Neptune give up gold with which to pay the reparations which the Allies were trying to extract from Germany. This great chemist was the father of Germany's poison war gases but he found scientific refuge in England from the Nazi regime just a few months before his death early this year.

Haber checked carefully the gold contents of sea water reported by other scientists. Their estimates were that the sea contained on the average about a tenth of a grain of gold per ton of water. So Haber made artificial gold-containing sea water and found that he could recover the gold with the right kinds of precipitating agent, filter and coagulation. Since 1890 many had tried

and failed but Haber had every reason to hope for success.

So he put out to sea in a ship specifically fitted as a chemical factory. He got samples from the oceans of the world. The results were all disheartening. The seas contained only a thousandth of the gold that previous analyses had indicated. Inaccurate analytical methods and use of gold-containing chemicals in making the earlier analyses had led Haber on a wild gold chase. Haber found the average gold value of sea water to be only 24 hundred thousandths of a grain per gross ton.

Disappointedly he wrote: "It is not probable that the precipitation of gold from sea water will ever be a commercial success."

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PSYCHOLOGY

Same Chord Produces Calm and Excitement

THE MUSICAL chord known to musically trained persons as the "chord of excitement" and more technically as the "diminished seventh chord," need not always produce a feeling of excitement in the listener, Dr. Christian Paul Heinlein, of the Florida State College for Women told the Southern Society for Philosophy and Psychology.

The chord is fitted admirably for exciting passages and this use is illustrated clearly in the music of Liszt, Wagner, and Tschaikowsky, but the chord is extremely versatile, Dr. Heinlein said. He presented musical passages in which the chord is conducive of calm and repose.

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ASTRONOMY-METEOROLOGY

Weather Cycles on Planets Revealed by Brightness Study

Colossal Examination of Records Since 1840 Shows Up Variations That German Astronomer Believes Atmospheric

OTHER planets in the solar system have their cycles of weather. Such is the conclusion arrived at by Dr. Wilhelm Becker of the Astrophysical Observatory at Potsdam from a long study of planetary light.

He collected all the observations that have been made on the brightness of the planets Mars, Jupiter, Saturn, and Neptune, from 1840 down to the present time, eliminated the effects of their varying distances from us and from the sun, reduced all the observations to a common scale and standard position of the planet—a colossal piece of work. When this was done, he found that there were still variations in brightness that could not be accounted for by any external cause, but must be due to changes that take place on the planet itself.

These changes, Dr. Becker believes, are atmospheric. They are comparable to the weather cycles that have been observed on the earth, such as the well-established Brückner cycle of 35 years. This cycle cannot be connected with sunspots because its period would then be 11 or some multiple of 11 years.

Dr. Becker's reasons for arriving at this conclusion are:

Some of the planetary variations in brightness found by him recur at equal intervals of time—are regularly periodic. Others, though irregular in period, have always the same character at each recurrence. The maxima and minima of brightness occur at different times on the different planets, and therefore can not be due to a single external cause such as a variation in the intensity or quality of the sun's radiation, which would affect all at the same time. Finally and most important, he finds that the brightness variations are correlated with certain changes in the appearance of the planet that can be and have been observed with the telescope.

Dr. Becker gives the following picture of the observational results in the scientific journal *Forschungen und Fortschritte* and in his report to the Prussian Academy of Sciences:

The brightness variations of Mars are characterized by long-lasting minima and short sharp maxima, the variation in the intensity of the light coming to us being about 35 per cent. There is no regular period.

Saturn, on the other hand, shows variations that are the mirror image of those of Mars. They have long-lasting

A PLANET CHANGES EXPRESSION

The differences between these two photographs of Mars which were taken about a month apart indicate how the appearance of the planet changes. The polar caps change conspicuously, being largest in Martian winter and smallest in summer. The general surface of the planet is reddish with sharply bounded areas of gray or dull green. It has an atmosphere, though not a dense one. The pictures were taken at the Mount Wilson Observatory of the Carnegie Institution of Washington with the 60-in. telescope.

maxima and short sharp minima—likewise with no regular period. The variation in intensity is about 40 per cent., after the light from the rings has been eliminated.

Jupiter, Uranus, and Neptune, on the contrary, show a regular periodicity in their light variations; that is, after a certain interval of time, the period, they always return to the same brightness. The length of the period is with Jupiter 11.6, with Uranus 8.4, with Neptune 21 years. The variation in brightness is for each about 25 per cent.

Jupiter and Saturn show easily discernible changes in appearance that run parallel with the light variations. In the telescope Jupiter appears to be crossed by a number of parallel cloud belts, the central one of which follows the equator. During a brightness-maximum the equatorial and northern belts are reddish brown, the southern belts white. During a minimum the colors are reversed, the equatorial and northern belts being (*Turn to Page* 222)

PHARMACOLOGY

Drug Given in Childbirth May Poison Baby

SUCH DRUGS as veronal and amytal when given to relieve the pain of childbirth may pass from the mother to the baby and poison the latter. Evidence of this was presented by James M. Dille, of Georgetown University School of Medicine, at the meeting of the American Physiological Society in New York City.

Obstetricians observing the condition of babies whose mothers had been given these drugs have reported conflicting views. Some found the babies were normal, others found the babies showed they had been poisoned by the drug.

The question appears to have been settled by the investigations Mr. Dille made on animals. Using a very exact method of determining the presence of these drugs, Mr. Dille was able to detect relatively large amounts of amytal or veronal or barbital in the unborn offspring of guinea pigs, rabbits and cats which had received doses of the pain-relieving drugs or sleeping powders. In some of the offspring he found almost enough of the drug to produce anesthesia.

"The conclusion to be drawn from these results," Mr. Dille said, "is that these drugs must be used with greater care and caution in the practice of obstetrics."

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MEDICINE

Research Finds Four Glands Concerned With Diabetes

Disease is Not Just a Matter of Sugar and Insulin; It is Influenced by Thyroid, Adrenals and Pituitary

DIABETES, a death-warrant disease until the discovery of insulin about a decade ago, is not merely a matter of the proper functioning within our bodies of the pancreas in which insulin is manufactured.

Other glands of internal secretion, the thyroid, the adrenals and the pituitary, play their parts in causing and preventing that disease of surplus sweetness. Dr. B. O. Barnes of the University of Chicago told at the meeting of the American Physiological Society in New York how these glands are interrelated.

For many years diabetes has been considered primarily a disease of the pancreas with its insulin-producing islands of Langerhans. During the last few years evidence has been accumulating that some of the other glands of internal secretion might also be involved, Dr. Barnes explained. For instance, experimentally-produced diabetes may be markedly improved by removal of the pituitary gland. This small structure located deep within the head has an important influence over growth and sex.

The thyroid also plays a part in diabetes. If a diabetic patient develops Graves' disease, due to overactivity of the thyroid gland, the diabetes becomes worse. Latest experiments now show that this effect is the result of the thyroid acting through the pituitary gland. When both pancreas and pituitary are removed, a mild diabetes occurs which is not aggravated by giving thyroid extract.

Just as removal of the pituitary improves the experimentally-produced diabetes in dogs, removal of part of the adrenal glands causes an improvement in the diabetic condition. It now appears that the pituitary may exert its influence on diabetes by acting through the adrenals, as the thyroid acts through the pituitary.

Considerable more experimental work must be done before these observations can be applied in the treatment of human diabetics, Dr. Barnes said, but these latest discoveries have led to better knowledge of the long-suspected interrelationship between the glands.

Research that sheds light on how the sugar-utilizing mechanism of the body breaks down in the absence of insulin, with diabetes resulting, was reported by Drs. C. N. H. Long, F. D. W. Lukens and Edith G. Fry of the University of Pennsylvania at the meeting of the Sosiety of Biological Chemists. After exercise uses some of the body's store of sugar, glycogen, which is the form in which sugar is stored, is rebuilt from lactic acid. This process goes on in the diabetic as well as in the normal animal, but at a much slower rate.

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CHEMISTRY

New Antiseptic Found For Use Against Bacteria

AZOCHLORAMID, a new chlorine-containing antiseptic highly soluble in water and most other solvents, was described before the American Chemical Society by Dr. Franz C. Schmelkes and Henry C. Marks, industrial chemists of Belleville, N. J. They stated that it is highly stable, not being easily destroyed by heat, nor chemically weakened by substances that usually greedily seize upon chlorine-containing compounds. Blood serum and similar organic substances are especially troublesome in that way, weakening other antiseptics when they are used against bacteria. It was for germ-killing in the presence of such organic stuffs that the new chemical was suggested.

For the benefit of those who may think the name Azochloramid is a bit of a jaw-breaker, it might be mentioned that this is just a sort of shorthand title, conferred for convenience. The correct name, which in itself describes to the organic chemist exactly what is in the compound and how it is put together, is N-N-Dichloroazodicarbonamidine.

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ASTRONOMY

New Object in Sky Seen From Johannesburg

A DIFFUSE object, possibly a new comet, has been discovered in the southern hemisphere skies by Dr. Cyril Jackson, astronomer at the Union Observatory, Johannesburg in Africa. It is twelfth magnitude. News of the discovery was received by Harvard College Observatory.

Science News Letter, April 7, 1934

PSYCHOLOGY

Touch on "False" Lip Felt in Wrong Place

THE INTERESTING problem of where sensations in transplanted bits of skin would be "felt" by the patient have often been the subject of surmise in fiction, and have now been made the subject of scientific research reported to the Southern Society for Philosophy and Psychology by Dr. Lyle H. Lanier and Beverly Douglas of Vanderbilt University.

They reported the case of a patient who had had the right half of the lower lip torn away in an accident. A new lip was made by cutting skin from the cheek without cutting it completely free and pivoting it around into place on the lip. Thus the nerve supply was not completely severed, and sensations on the new lip were localized by the patient as being out on the cheek.

The patient, however, oriented himself after several months and now judges the place of sensation correctly.

Science News Letter, April 7, 1934

MEDICINE

Heavy Water Seems of No Value Against Cancer

ANY HOPE that scientists may have entertained about the use of the new heavy water in treating cancer has dimmed because of experiments reported to the American Chemical Society by Dr. H. C. Urey of Columbia University, one of the trio of discoverers of the deuterium or heavy hydrogen contained in heavy water.

Cancer tissues were given doses of heavy water by Dr. G. Failla at Memorial Hospital, New York City, a leading cancer research center. The very first experiment encouraged Dr. Failla because a beautiful kill was obtained with twenty per cent. water. But when thirty per cent. water was tried the cancer tissues remained viable and transplantable as ever. When the twenty per cent. water experiment was repeated after repurification of the water, it too gave negative results.

Heavy water fed to wheat seedlings gave exactly the same results as ordinary light water when the conditions were otherwise the same.

While chemists are now working with pure double-weight hydrogen or deuterium, Dr. Urey sees little hope of the isolation of the triple-weight hydrogen, the discovery of which has just been announced. Dr. Urey accepts the existence of tritium hydrogen, but it probably exists in nature only as a few parts per billion parts of ordinary hydrogen. To isolate it would probably cost millions of dollars a gram.

The extracted oils, turpentine and resins are of course in a more or less crude condition, and require resigning before they are ready for the market.

Science News Letter, April 7, 1934

CHEMISTRY

Resin Extracted From Abandoned Pine Stumps

STUMPS, covering mile after mile of the flat cutover pinelands of the South, used to be only myriad monuments of waste. Now, thanks to chemical engineering research, they are sources of wealth.

At the meeting of the American Chemical Society in St. Petersburg, Fla., R. C. Palmer told how science has squeezed gold out of the remnants of former forests. Mr. Palmer is now at the British Columbia experiment station at Summerland, B. C., but was formerly located in northern Florida, where the steam extraction of turpentine and resin is extensively practiced.

The first step in the chemical salvage of stumps, he explained, is to chew them up in a mechanical grinder. Live steam is then turned on the mass, carrying off the natural terpene oils, which include pine oil as well as turpentine. Then a volatile solvent such as naphtha is added, to dissolve the rosin in the wood. When the rosin has been extracted, live steam is again introduced, this time to recover the naphtha for reuse. This leaves nothing but the dry shredded wood, which is commonly used for fuel, though the manufacture of a new type of wallboard is furnishing a more profitable outlet for part of it.

Science News Letter, April 7, 1934

IN SCIENCE

ASTRONOMY

Camera Records Telescope Pouring

See Front Cover

THE BEAUTIFULLY blended picture of light and shadow on the front cover of this week's SCIENCE NEWS LETTER shows a 400-pound ladle of molten glass being taken from the huge furnace at the Corning Glass Works to be poured into the mold of the 200-inch disk for the new reflecting telescope of the California Institute of Technology. (*SNL, March* 31, '34, *p.* 195) The photograph was taken by James Stokley, Science Service astronomical staff writer.

Through the furnace door to the left, which is just closing, one may glimpse the interior of the furnace at a temperature of 2800 degrees Fahrenheit. Filmy wisps of glass starting to cool as they contact the air can be seen hanging from the edge of the ladle, and the man with the hook is about to remove them.

The ladle is pictured at the beginning of its journey by overhead trolley to the mold nearby. Three ladles were used, each filled from a separate door of the furnace, and about 100 ladle-fulls were poured.

Science News Letter, April 7, 1934

NUTRITION—CHEMISTRY

Milk Makes Plants' Green Good Vitamin A Source

CHLOROPHYLL, the stuff that makes leaves green, makes a good source of vitamin A, but only when taken along with milk. This discovery was reported to the American Chemical Society by Prof. O. D. Abbott of the University of Florida. Fed alone, chlorophyll and two of its chemical derivatives did not help anemic laboratory rats on a deficient diet, but when the milk was added the formation of red blood cells was promoted.

Xantophyll, a yellow coloring matter also found in plants, proved of no dietary value to mammals but apparently could be a substitute for carotene in keeping hens healthy.

Science News Letter, April 7, 1934

CE FIELDS

CHEMISTRY

Cancer, Sex, Vitamin, Drug Have Chemical Similarity

CANCER, sex, one of the vitamins and certain drugs all have a chemical kinship to each other, Prof. Marston T. Bogert of Columbia University reported to the American Chemical Society. In the course of his investigation of the polycyclic hydrocarbons, which are highly complex compounds of carbon and hydrogen, he found that one group of atoms, known as the phenanthrene nucleus, is present in the tarry substances that provoke one form of cancer, in both male and female hormones, in vitamin D, and in some of the alkaloids like those of the morphine group.

Science News Letter, April 7, 1934

MEDICINE

Syphilis Not Imported By Columbus' Sailors

SYPHILIS, that great and still-obscure scourge of civilization, was not among the things brought back from the New World by Columbus' sailors when they returned to Spain in 1493. So declares Prof. Karl Sudhoff of the University of Leipzig, after a careful re-examination of the medical aspects of the early discovery literature.

Accounts were published of every imaginable detail of the voyage and the voyagers, on the occasions of their receptions by the monarchs of Spain and Portugal in March, 1493. The physicians of the Spanish and Portuguese cities were at that time probably the best in Europe and their scientific curiosity was keen; yet they have no word to say of any new ailment among the sailors of the expedition, who had been reported as in excellent health by their commander when they sailed away several months before.

The nearest date to Columbus' return, on which a recognizable description of syphilis in a Spanish port was written, was 1494, when a Sicilian physician, Nicolo Squillacio, mentioned in a letter "the new death that has come down out of Gaul." Not until nearly a generation after Columbus' voyage was any attempt made to attach the responsibility for the disease to adventures of his sailors in the Caribbean Islands.

Prof. Sudhoff, however, does believe that syphilis existed in America prior to 1492. He cites the researches of Dr. H. U. Williams at the University of Buffalo, on human remains of pre-Columbian date found far inland in such places as Peru and interior North America, as affording conclusive evidence to this effect. Syphilis, he believes, has been of world-wide distribution since very early times, and he holds that it came to America with the first migrations of Mongoloid man via the Bering Strait route of invasion.

Science News Letter, April 7, 1934

ARCHAEOLOGY

Removing Front Teeth Palestine Style 13,000 B.C.

MEMBERS of the Natufian race who lived in Palestine some 15,000 years ago, seem to have had the habit of removing the two front teeth before reaching the adult stage, it is stated by Prof. George Grant MacCurdy of Yale University, director of the American School of Prehistoric Research.

These Natufians were fond of ornaments, such as beads and pendants, Prof. MacCurdy said. Some of their bone sickle hafts were beautifully carved to represent animal forms. They had apparently learned their first lessons in simple agriculture, but had no domestic animals; neither had they learned the art of pottery making.

Some sixty skeletons of the Natufians are included in an exhibition now being held in the British Museum of the important Palestinian prehistoric remains found by six joint expeditions of the American School of Prehistoric Research and the British School of Archaeology in Jerusalem. Specimens exhibited come from a group of three caves in the Wady Mughara or Valley of the Caves at the foot of Mount Carmel, looking over the Plain of Sharon to the sea. There are also exhibited rare specimens from the Cave of Kebara, ten miles farther south.

The three Wady-Mughara caves reveal at least thirteen culture levels, beginning with the early part of the Old Stone Age. Prof. MacCurdy said that at least 100,000 years have elapsed since man inhabited the lowest level.

Science News Letter, April 7, 1934

ENDOCRINOLOGY

Fighting Glands Larger In Wild Animals Than in Man

THE ADRENAL glands, which mobilize the body's forces for action when danger suddenly threatens, are relatively larger in wild animals than in man, Drs. George and Robert Crile of the Cleveland Clinic reported to the American Association of Anatomists.

The adrenals weigh two or three times as much as the thyroid gland in animals living in the wild state. This ratio is higher in those animals whose survival depends on sudden outbursts of energy in fight or flight, the Cleveland surgeons learned from a study of 600 wild and domestic animals.

The thyroid gland, together with the brain and adrenals, are known to play definite roles in directing the energy of the body to meet different situations, Dr. Crile explained.

In contrast to the wild animals, man, whose energy must be maintained at a constant high level throughout his life, has a thyroid gland weighing about twice as much as the adrenals.

Science News Letter, April 7, 1934

CHEMISTRY

Textile Wastes Easily Made Harmless in Water

POLLUTION of rivers and other bodies of water by at least one type of industrial wastes, the discards of the textile printing and dyeing industries, can be easily and cheaply avoided. Foster D. Snell, Brooklyn consulting chemist, pointed out to the American Chemical Society how these waste liquors can be made harmless to fish and plant life in streams by adding to every thousand gallons four pounds of copperas and four pounds of lime, at a cost of less than five cents for each thousand gallons.

Science News Letter, April 7, 1934

BIOCHEMISTRY

Goldfish Live Normally In Dilute Heavy Water

GOLDFISH live normally and happily in dilute heavy water, Drs. G. Hevesy and E. Hofer of the Institute of Physical Chemistry of Freiburg, Germany, report in *Nature*. Other investigators had previously found that life processes were slowed by deuterium water and some lower animals killed.

Science News Letter, April 7, 1934

CLIMATOLOGY

Calamity Behind the Ice

Though It is Not Normal For the Earth to Be Ice-Capped, Loss of Ice Would Bring Disaster to Our Civilization

By DR. FRANK THONE

WHAT WOULD happen if the earth's polar ice caps should melt? If the mysterious southern continent where Byrd and Ellsworth struggle with endless glaciers should become bare of all glaciers? If Greenland's icy mountains should become as Patagonia's land?

The idea is not so impossible as it sounds. It is not normal for the earth to have its both ends frozen solid; it seems so merely because it has been so during all of man's recollected history. The ancients and the men of the middle ages knew the boreal regions as lands of perpetual snow. Lief the Lucky was honest when he gave Iceland its name, but when he named Greenland he seems to have succumbed to the temptation that conquers most promoters of new real estate developments: for it is probable that all he ever saw of green on the ice-sheeted subcontinent was a stretch of its shore country during the brief Arctic summer.

There is, to be sure, some suggestion that the world had milder seasons during the tenth and eleventh centuries, when the Vikings came, first to Greenland and then to America, followed by a return of the cold in about the fourteenth century, which froze out the hopeful colonies and sent the defeated settlers either into their frozen graves or into sorrowful retreat to the homeland.

The Scientist Speculates

But what if this half-hypothetical amelioration of the world climate should return, and continue long enough to clear away the last of the world's permanent ice? What other effects would it have, than to start a new boom in choice building lots in the suburbs of Upernavik? Would the world be, in the long run, gainer or loser by a complete thawing out?

Scientists no less than romancers and ordinary run-of-the-mine laymen like to speculate on such possibilities. Their guesses have at least the advantages of some quantitative estimates to back them up, and especially of going off into directions not usually thought of by minds not scientifically trained. Science is good for the imagination as well as for the handling of cold facts: to choose a single instance, the case of H. G. Wells, who was trained as a biologist before he became a writer of romances and a popular philosopher.

The first thing that all earth-scientists know, and use as a point of departure in their speculations about an ice-free earth is that, speaking in terms of geologic ages, it is the usual, the normal thing, for the earth to be ice-free. Ice ages, such as the one in whose twilight we moderns are living, have been the exception rather than the rule in the long history of the earth. There have been only three such periods of really major importance: the Pleistocene age, which began a million years ago, more or less, and is still in process of liquidation; an Ice Age not long after the close of the Coal Age, perhaps a quarter of a billion years ago: and finally one near the dawn of all well-recorded life on earth, that misty period known as the late pre-Cambrian, vaguely from half a billion to two-thirds of a billion years back. During the rest of the time the climate at the poles was at least temperate; some geologists used to believe it was outright tropical.

Among the scientists who have taken their pleasure in thinking what a "normal," ice-free earth might be like if it should return while the human species is still in existence is Prof. W. J. Humphreys of U. S. Weather Bureau Prof. Humphreys is duly licensed to engage in such scientific questions of the imagination, for his special subject has long been the physics of the air—the quirks and turns of that ocean of labile fluid at the bottom of which we live and move and have our being. This final melting-off of the last remains of earth's ancient mantle of ice may come faster than we usually think possible for geologic processes. Prof. Humphreys says it may happen in as little as ten thousand years—and human civilization is already almost as old as that.

The existence of permanently refrigerated spots on the earth has a decided influence on the behavior of the earth's blanketing ocean of air. The migrations of chilled air masses toward the south, their encounters with warmed air masses from the tropics migrating toward the north, and the ebb and flow of battle that ensues when such masses of air encounter each other, make up a large part of the story of the weather, especially in those regions of intemperate climatic contrasts and changes which we have inaptly called the temperate zones.

Climate Would Change

The first and most important change a disappearance of the Arctic and Antarctic ice regions would accomplish, says Prof. Humphreys, would be the removal of the present type of climatic contrasts in these middle latitudes. The sun would still shine on the tropics and subtropics, to be sure, warming the air, making it less dense, and inviting cooler air from elsewhere to slide under and lift it up. Moisture-laden warm air from over the oceans would migrate over the lands that are now the tropical rain belts and monsoon regions, leaving them still lands of heavy rains. The tropics, he thinks, would be relatively little changed, except perhaps that their present tropical characteristics might be intensified.

But in the lands of the mid-latitudes, especially in the Northern Hemisphere (where the greater area of such lands lies) a startling and not at all favorable change in climate would occur. At present, the great grain lands that feed the

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SUPERSTITIONS

an address by

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world—Canada and the United States, Russia and China, and in the Southern Hemisphere Australia and Argentina—owe their fruitfulness to the rain- and snow-yielding storms that result from the encounter of moisture-laden warm air from lower latitudes with chill, moisture-condensing air moving down from the regions of perpetual cold. Our crops are born of these stormy marriages of the genii of the air.

Remove the northern partners, or weaken them appreciably, and the rains will dwindle or even cease altogether. This is the fate Prof. Humphreys foresees for the great grain belts as they now exist: they will become first thin-grassed lands fit only for marginal herds of sheep and goats, then even that scant vegetational cover will disappear—its end hastened, perhaps, by desperate overgrazing carried on by starving nomad shepherds. Then will Iowa and Nebraska, Manitoba and Saskatchewan become extensions of a great American desert stretching southward to the borders of the Mexican tropics, empty and arid as the Sahara is now, the soil burned dry of its fertility by the summer suns and blown into towering dust-storms by occasional winds. But for the most part even these winds will be lacking, for the wind-engendering cold air from the north will fail. It will be a land of stagnant death. And the great grain lands of central Europe and Asia will share its fate.

"Go North"

What will the peoples of the earth do when the old, long-relied-on corn lands fail them? The first and most obvious answer is, "go north." There will be folk-migrations of vast extent, compared with which those that preceded the Fall of Rome were but picnic excursions. If we are no more civilized than we are now when this irresistible "Drang nach Norden" begins to make itself felt, if the nations possessing northern lands refuse to admit the hordes of new immigrants who will clamor for admittance and passage to the new frontier, there will unquestionably be terrific wars, and in the trail of those wars famine and pestilence. It may well be that the whole structure of whatever civilization may be in existence at that time will collapse utterly, as that of the Roman West did under the weight of Germanic hordes fifteen hundred years ago, and a new and bitter Dark Age thus begin.

Nations possessing broad lands in the North may well be justified in denying their gates to hard-pressed folk from the increasingly desert South. For the lands of the North will not suffice to support as large a population as will by that time swarm in the grain belt lands of the world. On the ordinary Mercator-projection map these great northern lands—Alaska, northern Canada, Greenland, Sibera—loom huge. But look at a globe, or at a map that spreads and distorts the northern areas less, and you will at once see that their area, even if all were fertile, is not equal to that of the temperate-zone lands of the present day.

EVERLASTING ICE

Ice that all year round hides the coasts of Antarctica evidences the continuing ice age.

Moreover, much of this northern land will be unsuited for human support even when the ice does finally melt off. A great deal of what is now forest in northeastern Canada stands on almost bare rock, with the roots of the trees holding precariously in a few inches of raw humus and half-decayed leaves and moss—"duff," the foresters call it. So scanty is this roothold that a forest fire burns not only the trees but the very soil they stand in, leaving nothing but a sprinkling of ashes on the bald rock. Such lands must forever remain forest, to be of even minor usefulness to mankind.

Bald rock, also, will probably be the whole inheritance of the nations when the ice sheets over Greenland and Antarctica melt away. Much of the rock underlying the forests of Canada was left stark and bare when the great twin ice sheets of northeastern North America slowly retreated a hundred thousand years ago; any soil they may once have had had been cleared away as with a plane by the plowing fronts of the ice lobes. It is highly improbable that any appreciable part of the sub-ice surfaces of Greenland and Antarctica today are in any better case. They may some day be useful for airplane fields, and miners may exploit them for coal and minerals, but it is beyond human imagination to think of plowing them and planting corn.

Loss of Land

But supposing peace to come among the nations (or their fragments) after the great wars of Arctica and Antarctica, and supposing the relics of their populations spared by the sword, famine and pestilence to be settled down in a wearied peace. Would the broad lands for which they fought be there to receive them?

Not in anything like their present form. For the ice caps of the polar regions now contain, locked up away from circulation in rivers and oceans, enough water to raise the world's sea level about 150 feet. This is enough to make a material reduction in the coastal land areas of the world. Much of our Atlantic and Gulf coastal areas, including the greater part of Florida and a

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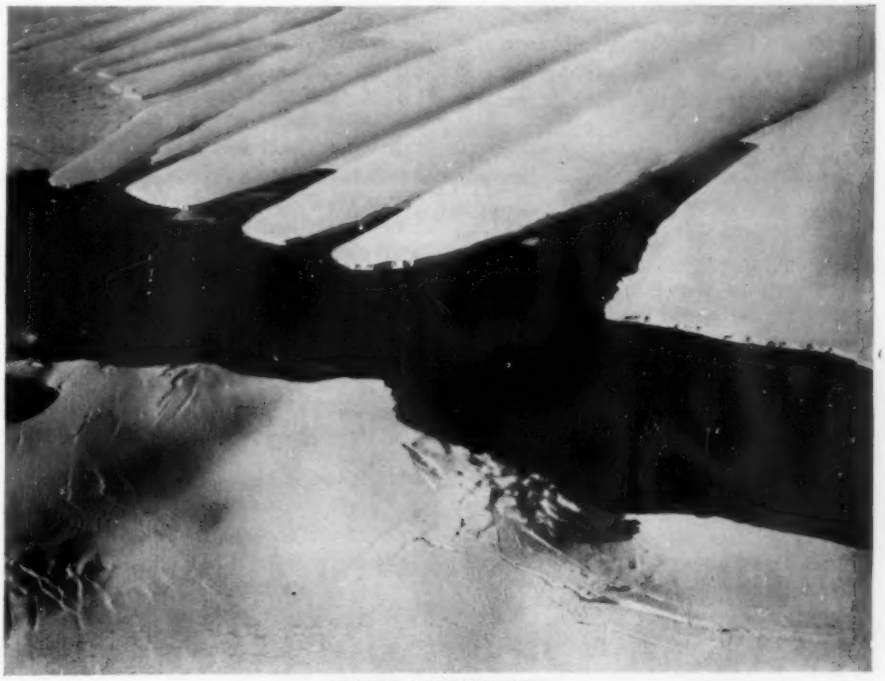

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deep embayment up the Mississippi valley, would be thus flooded. The greater part of Holland would disappear, and a goodly share of Belgium, as well as wide stretches of the North Sea coasts of both Britain and Germany. Denmark would be reduced to a mere collection of tiny islands. The Baltic "succession states"—Finland, Lithuania and the rest—would have to cede stretches of their sea fronts to the hungry sea. Every harbor in the world would be rendered useless, and new ones created.

But all these changes would be of little moment after all, for all these countries, or at least the great hinterlands that support them, would be producing nothing to ship; so what would be the use of harbors, or the importance of lost coastal lands?

But the Arctic Ocean would be demanding its acres, too, and there the rub would hurt worse. For most of the lands that slope towards the Arctic fall off very flatly and gradually as long, level grasslands becoming sea-swamps and then sea. Up this sea-plane, and spreading out from the banks of the rivers that meander through it, the sea will spread its hundred-and-fifty feet of added elevation, and the lands for which the nations may fight their last Armageddon will be sadly curtailed by the time they are won.

Science News Letter, April 7, 1934

ENGINEERING

Engineers Test Structures Without Destroying Them

THE ADAGE that states that you cannot eat your cake and have it too expresses tersely the dilemma of the manufacturer or engineer who wishes to test his materials. For true testing by most commonly accepted methods involves the destruction of the material tested. The engineer wishes to know how much strain his material can stand before it will break, and to learn this he finds it necessary to break it. Testing by sample or by model involves a gamble upon the likeness of the sample to the rest of the material.

The examination of materials with X-rays and gamma rays does not provide the immediate solution to this problem, we are warned by an article in the British journal, *Engineer,* abstracted in the current issue of *Industrial Standardization.* For such an examination is no test at all in the technical sense.

"Rapidly as the use and usefulness of X-rays and gamma rays are advancing in engineering practice, it is still true that radiography as applied to metals has as yet barely entered the measurement phase," the report reads. "It serves in a remarkable and valuable way as a means of detecting the existence of certain, not all, types of internal flaw, but it is only with difficulty and with considerable latitude for error that it can at present be used to measure the size of the flaws and their positions within the bodies examined."

Nevertheless, it is anticipated that this radiographic method may be developed to provide an actual measure of stress as well as a revealing device for detecting flaws.

"The new technique covering the detection of crystal lattice distortion by the reflection of X-rays may soon result in very considerable developments. It is conceivable, for example, that by the application of the reflected ray method to a structure in service it may be possible, not only to detect the existence of strain in it or any of its parts, but to measure that strain and to convert it into terms of the corresponding stress. In such event radiography would provide a unique system of non-destructive testing."

Meanwhile, other methods of true non-destructive testing in use or within possibility should not be overlooked, the report warns. Such, for example is the test commonly applied to a finished bridge, involving the measurement of its deflection under different given loads. A test of this nature confirms the suitability of the design, the accuracy of the calculations, and the soundness of the materials.

Electrical methods are also important, such as placing the specimen in a magnetic field and then sprinkling it with fine iron filings to detect surface cracks, or passing a current through the length of the specimen and noting the extent and manner of the obstruction to the flow as a means of revealing deep-seated defects.

Science News Letter, April 7, 1934

MEDICINE

Pure Oxygen Piped To Hospital Rooms

PURE oxygen is being piped directly to rooms in the University of Wisconsin State General Hospital at Madison. The new arrangement is to make oxygen available to patients with pneumonia or other ailments which affect directly or indirectly the breathing apparatus.

The bulky oxygen tanks which must be carted from room to room and replaced from time to time are becoming obsolete, hospital authorities said. Oxygen tents and oxygen tubes are more and more frequently called upon in cases even in which there is no direct involvement of the lungs or chest muscles. Pure oxygen administration has been found to increase the constitutional stamina as well as to alleviate the various forms of distress from inability to inhale atmospheric oxygen. The oxygen will now come to the rooms in pipes from a central system from which the necessary supply for the patients may be taken, as water is taken from a sink or faucet.

The Wisconsin General Hospital will be the first in the country to establish this innovation.

Science News Letter, April 7, 1934

PSYCHOLOGY

Suggestion During Hypnosis Causes Strange Blindness

A PECULIAR temporary blindness in one eye, produced merely by a suggestion when the individual was in a hypnotic trance, was described at the Southern Society for Philosophy and Psychology by Dr. Frank A. Pattie, Jr., of Rice Institute.

The "blind" eye could discern light, but could not make out any form. When looking at a moving flashlight in a dark room, the subject could not tell horizontal from vertical movement, nor could he make out even the largest letter on an illuminated eye-test chart. When the room was illuminated evenly, no evidence was found that this "blind" eye could see anything at all.

With both eyes open, the subject did not have binocular vision, but saw things just as he would if the blinded eye had been covered. When the suggestion was made after the hypnotic spell instead of during the trance, the blurring of vision was not so great.

Science News Letter, April 7, 1934

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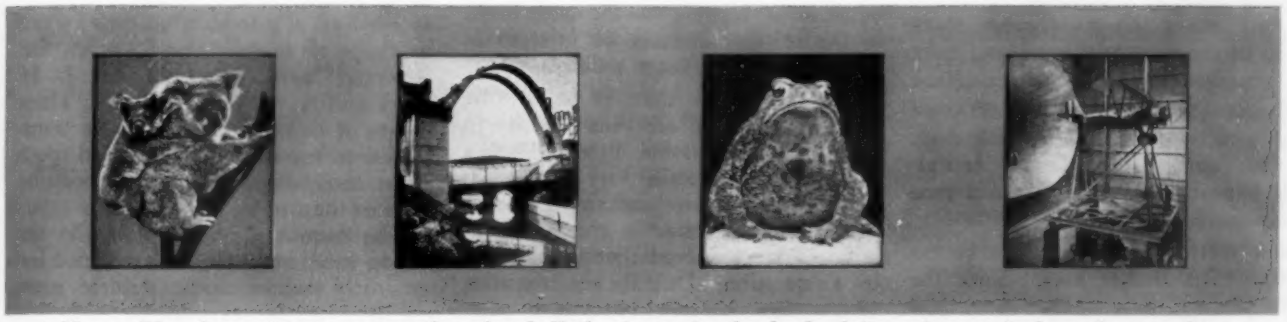

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(19164)

ASTRONOMY

Weather Cycles Revealed on Planets

From Page 215

white and the southern belts reddish. These color changes and their period of about twelve years had already been observed by Stanley Williams. It is significant, Dr. Becker remarks, that the famous great red spot of Jupiter that appeared in the southern belts in 1878, occurred at a brightness minimum.

Saturn presents a different spectacle. At every second minimum, white spots appear in the equatorial zone, and have been observed at no other times. Since 1850, this phenomenon has occurred four times, the last occasion being Aug. 3, 1933, when a large white spot suddenly appeared. This was also a time of minimum brightness.

How are these phenomena to be explained? Dr. Becker asks. Since the planets do not shine by their own light but reflected sunlight, the changes in brightness can only be caused, he says, by changes in the reflecting power of the planet's surface. The visible surface in all of the planets considered, except Mars, consists of a blanket of clouds. He believes that what occurs can be described somewhat as follows. He says:

"At a maximum that planet begins to cover itself over with a thin veil of clouds, whose reflecting power is less than that of the underlying surface. This cloud-veil becomes gradually thicker and its reflecting power less, until the brightness-minimum is reached. During a minimum the veil may be torn in places, so that parts of the brighter surface below show through and appear as white spots, as seen on Saturn. The rise to the next brightness maximum is then caused by a gradual dissolution of the cloud-veil. . ."

"The matter is somewhat different with Mars. Since the solid surface of this planet has in contrast with the others a very low reflecting power (like that of river sand), a covering over with a cloud-veil, which has in fact often been observed, can only result in an increase in brightness. For that reason the light changes of Mars are the mirror image of those of Jupiter; for the same event in the former produces an increase in brightness, in the latter a decrease."

The brightness changes of all the planets considered are thus reduced to substantially the same process, but a process whose details vary with each planet, and whose underlying causes must therefore reside in the planet itself. What these underlying causes are, is a question, Dr. Becker remarks, which must be left, like many other astronomical questions, for the present unanswered.

He points out, however, that the earth too, as seen for example from the moon, shows variations in brightness. This we can ourselves indirectly observe. When the moon is crescent, the rest of the disk can be faintly seen. This is due to sunlight reflected by the earth to the moon, for there is earthlight on the moon just as there is moonlight on the earth. Variations in this earthlight on the moon have often been observed, showing that the brightness of the earth varies, probably with the degree of cloudiness and the amount of snow or of vegetation.

Science News Letter, April 7, 1934

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ENDOCRINOLOGY

Thymus Gland Speeds Maturity and Growth

THE MYSTERY of the thymus gland has apparently at last been solved by researches at the Philadelphia Institute for Medical Research of the Philadelphia General Hospital.

The thymus is capable of causing enormous precocity, Dr. L. G. Rowntree reported at the meeting of the American Physiological Society. Growth, development, maturity and fertility were speeded up at a tremendous rate in rats by doses of thymus gland extract, Dr. Rowntree and associates, Drs. J. H. Clark and A. M. Hanson, found. These effects of thymus treatment were transmitted to the offspring and were much more marked in the third generation than in the first.

The thymus gland is located in the chest. It is very large in infants but gradually shrinks as the children grow up. Its exact function has never before been known, though scientists have suspected that it had some relation to growth. Sometimes the gland is so large that it causes death in infants by interfering with the supply of oxygen to the lungs, thus choking the luckless babies. Such deaths are frighteningly sudden and mysterious, and the cause generally not known until examination of the baby's body after death shows the thymus to be enormous.

Science News Letter, April 7, 1934

PHARMACOLOGY

Highest Pharmacy Award To Sir Henry Wellcome

THE REMINGTON Honor Medal for 1934, highest honor of American pharmacy, has just been awarded to Sir Henry Wellcome of London, founder of the Wellcome Physiological and Chemical Research Laboratories among many other scientific institutions.

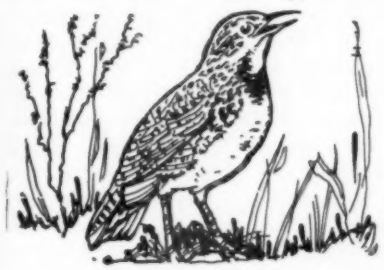
Sir Henry was born in Wisconsin and received his pharmaceutical education in this country. His report on conditions in Panama in 1910 led to increased support by the U. S. Government of the work and methods of General Gorgas at a time when these important sanitary operations were in danger of serious handicap through decreased appropriations.

Sir Henry has contributed to the knowledge of the prehistory of Ethiopia and the upper Nile regions.

Science News Letter, April 7, 1934

ORNITHOLOGY

NATURE RAMBLINGS
by Frank Thone



Meadowlark

ABOUT the time that the orchards and trees about the house ring with the songs of robin and bluebird, or often even earlier, the open pastures and fallow fields regain their population of meadowlarks, which many people think are the most tuneful of our commoner small birds. They are, God be praised, very common indeed; a patch of grassland at dawn tosses them up by scores on their short essays of simultaneous song and vertical flight. Less ambitious than their European cousin whom one of the most lyric of poets saw as consanguine and so immortalized, our meadowlarks nevertheless sing as sweetly on their limited flights. Perhaps some day this continent will develop a poet worthy of proclaiming him.

The meadowlark is a beautiful example of how great comeliness can be achieved without the use of bright feathers. Almost everything about him is brown or black, yet he is undeniably a handsome bird. The brown sleekness of his back and head, his mottled breast, the striking dark gorget across his throat, all mark him as a gentleman who knows how to dress conservatively yet with distinction. And, incidentally, set the fashion for the younger set among other birds; for the juvenile plumage of other species often is reminiscent of his mottled brown.

There is a good evolutionary reason for this preference for dried-grass-colors on the part of the meadowlark—or at least it would have been hailed as a good reason in the less sophisticated and skeptical earlier days of Darwinism. His handsome suit is also good camouflage: a ground-dweller cannot afford to mark himself with attention-catching blues and yellows, like a bunting or a finch.

Science News Letter, April 7, 1934

MEDICINE

Synthetic Cortin to Aid Addison's Disease Victims

Scientists Learn Make-up of Hormone So That Now Scarce Natural Extract May be Produced Cheaply in Laboratory

THE LIFE-SAVING hormone of the adrenal gland cortex has for the first time been obtained in pure crystalline form and its chemical composition discovered. This important announcement was made by Dr. E. C. Kendall of the Mayo Foundation, Rochester, Minn., at the meeting of the American Society of Biological Chemists.

Cortin, as this hormone is called, has the formula $C_{20}H_{30}O_5$, Dr. Kendall and his associates found. Discovery of its composition means that chemists can now work toward the laboratory production of the hormone.

This hormone has saved the lives of victims of hitherto hopeless Addison's disease, the ailment in which the skin turns dark and the patient gradually wastes away. These patients have thus far had to depend on cortical extracts from animal glands. The scarcity of this material and its expense have made it impossible to treat all of them, since the treatment must be kept up continuously in order that the patient may go on living. With the discovery of the hormone's chemical structure it may be possible to manufacture it and thus increase the supply.

Besides its life-saving effect, cortin was found by the Mayo Foundation group to act as a brake on the thyroid gland. This U-shaped gland in the neck secretes a hormone, thyroxin, which stimulates the body's use of protein. When the gland is over-active and too much of its hormone is produced, it opens the throttle too wide and makes the body burn up protein too fast. People suffering from this condition are in consequence very thin. But cortin puts a brake on this process. This action is a good example of the reciprocal effect of one gland secretion on another, about which scientists are learning more and more. Sometimes these glands of internal secretion act to reenforce each other and sometimes they have an antagonistic effect on each other's activities.

Science News Letter, April 7, 1934

METEOROLOGY

Four Daily Weather Forecasts Instead of Two, is Plan

REPORTS on the state of the weather at intervals of six hours instead of twice a day as at present are planned under the "new deal" for the weather being instituted under the leadership of Willis Ray Gregg, recently appointed chief of the U. S. Weather Bureau.

In his first public statement of what improvements in weather forecasting are contemplated, Mr. Gregg revealed that in addition to nation-wide reports at 8 a. m. and at 8 p. m. it is hoped to provide similar reports at 2 a. m. and at 2 p. m.

Since much of the weather we know is manufactured high in the air, upper air data of temperature and humidity are especially valuable. At present this information is obtained by means of special "meteorograph" instruments carried aloft by airplanes to 20,000 feet and while the observations at half a dozen widely distributed stations are of great aid, Mr. Gregg hopes to increase the number of stations at which upper air soundings are made.

With more information available, Mr. Gregg is confident that it will be possible to increase the already high accuracy of the weather forecasts and also to extend the period of the forecasts.

With additional observations available, the use of the method of air mass analysis recommended by President Roosevelt's Science Advisory Board will be begun.

Science News Letter, April 7, 1934

First Glances at New Books

Arch·eology

EXCAVATING KIRJATH-SEPHER'S TEN CITIES—Melvin Grove Kyle—*W. B. Eerdmans Pub. Co., Grand Rapids, Mich.*, 203 p., $2.50. A book on Biblical archaeology that is readable as well as instructive, and that will appeal to the intelligent layman who wants to know more about the unearthing of Bible cities. The subject is the excavation of a single site, but the theme is elaborated with much background information on the life of the Canaanites and Israelites, the history of the land, and the modern archaeological methods of re-discovering the past. The volume is made up of the James Sprunt Lectures delivered by the late Dr. Kyle at Union Theological Seminary, Richmond, in 1932.

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Geography

PRINCIPLES OF HUMAN GEOGRAPHY —Ellsworth Huntington and Sumner W. Cushing—*John Wiley*, 467 p., $3. This is the fourth edition of a complete geography for those who think, emphasizing the human relationships. The publishers suggest it as a text for normal schools and colleges where an advanced treatment of the general principles of geography is desired, but any intelligent person who wishes to know and keep abreast of his world will read it with pleasure and profit.

Science News Letter, April 7, 1934

Biophysics

SUR L'EXCÉDENT DE PUISSANCE DES OISEAUX—A. Magnan and A. Planiol—*Hermann et Cie (Paris)*, 25 p., 8 fr. An examination of the strength of birds' wings, using physical and engineering methods.

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Biophysics

SUR L'EXCÉDENT DE PUISSANCE DES INSECTES—A. Magnan and A. Planiol —*Hermann et Cie (Paris)*, 26 p., 8 fr. A study similar to the foregoing, on insects.

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Cosmothanetology

CREATION'S DOOM — Desiderius Papp, transl. by H. J. Stenning—*Appleton-Century*, xii+288 p., $3. A comprehensive, if slightly turgid, gathering-up of all the doomsdays that have been imagined: solar explosion, cometary collision, final freezing, and all the rest. At the end he leaves the earth to insects, then to unicellular organisms as big as "wolves or horses," finally to complete sterility and the last flaming embrace of the exploding sun.

Science News Letter, April 7, 1934

Education-Recreation

THE THEORY OF PLAY—Elmer D. Mitchell and Bernard S. Mason—*Barnes*, 547 p., $2.80. Discusses the historical background, the theory, and the need for play, with a fourth large section of the volume devoted to the administration of play activities. Intended as an aid in the planning of future recreational standards.

Science News Letter, April 7, 1934

Education

THE SECONDARY-SCHOOL POPULATION—Grayson N. Kefauver, Victor H. Noll, and C. Elwood Drake—*U. S. Govt. Print. Off.*, 58 p., 10c. Fully half the boys and girls of high school age in the United States are enrolled in high schools. The survey reported here secured information about these young people. A monograph of the National Survey of Secondary Education.

Science News Letter, April 7, 1934

Physics

FIVE HUNDRED PROBLEMS IN OPTICS —*Fred H. Perrin*, 37 p. 90c. Intended to suppiement the textbook "The Principles of Optics," by Arthur C. Hardy and the author, this publication incidentally demonstrates the effectiveness of lithography for the production in typescript facsimile of scientific material.

Science News Letter, April 7, 1934

Technology

THE PHYSICAL PROPERTIES OF LUMBER—G. F. Ivey—*Southern Pub. Co. (Hickory, N. C.)*, x+263 p., $1.50. Out of the lessons of his many years of experience as a furniture manufacturer, the author has distilled a very practical handbook containing much information not to be found in as convenient a form elsewhere. He treats of the properties of woods, the grading, weight, hardness, shrinkage and strength of lumber, its production, and the principal species of lumber-yielding trees.

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Engineering

INDUSTRIALIZED RUSSIA — Alcan Hirsch—*Chemical Catalog*, 309 p., $3. An American engineer who held high office with the Soviets makes an engineer's report of the industrialization of Russia comparing present achievement with the past in Russia rather than with the present acme of technology in the United States. Business, government, finance, law, living conditions, education and religion are also covered from the same detached, analytical point of view. One who has not been to Russia feels that this is a book which gives one of the truest pictures so far published of that country today.

Science News Letter, April 7, 1934

Radio

THE RADIO AMATEUR'S HANDBOOK —Headquarters staff of A. R. R. L.—*American Radio Relay League*, 238 p., $1. Chapter headings best explain the contents of this very useful book intended both as a reference work for member-operators of the American Radio Relay League and other skilled amateurs and as a source of information to those wishing to participate in amateur activities. They are: the story of amateur radio, getting started, electrical fundamentals, radio fundamentals, receivers, monitors and frequency meters, planning and building transmitters, radiotelephony, ultra-high frequencies, power supply, keying and interference elimination, antenna systems, assembling the station, the A. R. R. L. communications department, operating a station, message handling.

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Psychology

THE PSYCHOLOGY OF ADOLESCENCE —*Karl C. Garrison—Prentice-Hall*, 377 p., $3. This work has a dual purpose, to serve the interests of college students who may themselves still be within the adolescent group, and to aid those intrusted with the care and guidance of the young. The author is professor of psychology at North Carolina State College of the University of North Carolina.

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